Taxonomy of the genus *Uloma* Dejean (Coleoptera: Tenebrionidae: Tenebrioninae) from Thailand

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Abstract: The paper deals with Thai species of the genus *Uloma* Dejean. Three newly recorded species, *Uloma longolineata* Liu & Ren, 2007, *Uloma zhengi* Liu & Ren, 2007 and *Uloma javana* Gebien, 1912, all from Thailand are recorded in this paper. A key and photos of the known species of *Uloma* from Thailand are presented. A redescription of the male and the first description of the female of *Uloma rufilabris* Fairmaire, 1882 are also provided.

Key words: Ulomini; new record; taxonomy; key

泰国齿甲属分类研究（鞘翅目：拟步甲科：拟步甲亚科）

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摘要：对泰国齿甲属 *Uloma* Dejean 进行了分类整理，记述了 3 新纪录种，即 *U. longolineata* Liu & Ren, 2007，*U. zhengi* Liu & Ren, 2007 和 *U. javana* Gebien, 1912。提供了泰国齿甲属已知种类的检索表、整体照片以及 *Uloma rufilabris* Fairmaire, 1882 的雄性再描述和雌性首次描述。

关键词：齿甲族；新纪录；分类；检索表

Introduction

The genus *Uloma* belonging to the tribe Ulomini of the Tenebrionidae was established by Dejean in 1821, and the type species is *U. culinaris* (Linnaeus, 1758) from Germany. Species in the genus *Uloma* are distributed worldwide, especially in moist and warm areas. They occur in well-rotted wood or under the bark of trees in forests (Schawaller 1996).

The genus *Uloma* is easy to recognize by the following characters: clypeolabral membrane is covered or exposed only in middle, labrum is lower than clypeus. Eyes are developed. Antennomeres 5 to 10 are transverse, forming a distinct club, and have some placoid sensoria on their distal edge and are arranged in complete rings on antennomeres 7 to 10. The pronotum of most species is sexually dimorphic, males have anterior impressions and low protuberances. Protibiae are more or less expanded, and outer edges are strongly toothed. Mesotibiae and metatibiae are not toothed, but have several short spine-like bristles along apical edge (Liu *et al*. 2013; Matthews & Bouchard 2008).

Until now, more than 200 valid species in the genus *Uloma* are recognized, from which

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①Corresponding author, E-mail: gdren@hbu.edu.cn only 3 species have been recorded from Thailand (Schawaller 1996). They were described by Wiedemann (1821), Hope (1831) and Fairmaire (1882). Besides Schawaller (1996), there is no research referring to Thai species in the genus *Uloma*, so this is the first modern study of this genus from Thailand.

While examining the *Uloma* specimens in the collections of the California Academy of Sciences (CAS), San Francisco, America, we recognized three species, *U. longolineata* Liu & Ren, 2007, *U. zhengi* Liu & Ren, 2007 and *U. javana* Gebien, 1912, collected from Tak, Doi Suthep and Doi Pui, in northwestern Thailand. They are newly recorded species in Thailand. This establishes six *Uloma* species known in Thailand to date. A redescription of the male and a description of the female of *U. rufilabris* Fairmaire, 1882 are also provided on the basis of specimens from the type locality.

Material and methods

Specimens were examined and described using a Nikon SMZ800 dissecting microscope. Photos were taken with a Leica M205A stereomicroscope equipped with a Leica DFC 450 digital microscope camera. All measurements were made in millimeters. Specimens examined are deposited in the California Academy of Sciences (CAS), San Francisco, America; in the National Museum of Nature and Science (NSMT), Tokyo, Japan; in the Natural History Museum (NHMB), Basel, Switzerland and in the Museum of Hebei University (MHBU), Baoding, China.

Taxonomy

Uloma Dejean, 1821

Uloma Dejean, 1821: 67; Seidlitz, 1893: 593; Kaszab, 1982: 233; Masumoto & Nisiiikawa, 1986: 17; Schawaller, 1996: 111; Schawaller, 2000: 1.

Melasia Perroud & Mulsant, 1856: 160. Type species: *Melasia gagatina* Perroud & Mulsant, 1856 (Sicile). Synonymized by Jacquelin du val C, 1861: 301.

Prioscelida White, 1846: 11. Type species: *Prioscelida tenebrionoides* White, 1846 (New Zealand). Synonymized by Broun, 1880: 362.

Type species. *Tenebrio culinaris* Linnaeus, 1758 (Germany).

Key to the known species of *Uloma* Dejean from Thailand (males)

1. Pronotum with anterior impression ··························· 2
-. Pronotum without anterior impression ··························· 4
2. Antennomere 5 and 7 obviously sharply prominent to inner border ··························· *U. rubripes rubripes* (Hope)
-. Antennomere 5 and 7 normal, not prominent to inner border ··························· 3
3. Mentum strongly rising anteriorly at both sides; antennomere 5 to 9 with several long grooves at each inner side ··························· *U. longolineata* Liu & Ren, 2007 n. rec.
-. Mentum not rising at both sides, nearly flat; antennomere 5 to 9 normal, without groove ··························· *U. zhengi* Liu & Ren, 2007 n. rec.
4. Protarsomere 3 with a lobed protuberance ··························· *U. polita* (Wiedemann)
-. Protarsomere 3 normal, without lobed protuberance ··························· 5

5. Mentum with pubescence arranged in a pair of crescents at outer sides; body larger (14.0–16.0 mm) ·· *U. javana* Gebien, 1912 n. rec.

-. Mentum without pubescence; body smaller (5.5–7.0 mm) ·· *U. rufilabris* Fairmaire

1. ***Uloma rubripes rubripes* (Hope, 1831)** (Fig. 1)

Tenebrio rubripes Hope, 1831: 31.

Uloma rubripes: Gebien 1940: 773.

Uloma rubripes rubripes: Löbl *et al.* 2008: 303.

Uloma prehimalayana Kaszab, 1975: 325. Synonymized by Schawaller, 1996: 116.

Type locality. Nepal.

Type specimen examined. 1♂ (NHMB), the holotype of *U. prehimalayana* Kaszab, 1975, Bhutan, Phuntsholing, 87 km, 22-V-1972, collector unknown.

Other specimens examined. 1♂ (CAS), India, Assam, 1906, collected by W. F. Badgley; 1♂1♀ (NSMT), Malaysia, N. Borneo, Nr. Keningau City, Crocker Range 1000–1400 m, 30-IV-1988, collected by N. Kobavashi.

Distribution. China; Thailand; Bhutan; India; Indonesia; Nepal; New Guinea; Phillipines; Vietnam.

Remarks. It is not known to the authors of this paper who transfered *Tenebrio rubripes* Hope, 1831 to the genus *Uloma*, but Gebien (1940) started to use *Uloma rubripes* (Hope, 1831).

2. ***Uloma longolineata* Liu & Ren, 2007** (Fig. 2), new record to Thailand

Uloma longolineata Liu & Ren, 2007: 530.

Type locality. China.

Type specimen examined. 1♂ (MHBU), the holotype, China, Guangxi, Tianlin, Langping, 30-V-2002, collected by Xiujuan YANG.

Other specimens examined. 1♂1♀ (CAS), Thailand, E. Slope Doi Suthep 875–950 m, 15-VII-1962, collected by E. S. Ross and D. Q. Cavagnaro; 1♂ (CAS), Thailand, crest of Doi Pui, 1200 m, 17-XI-1978, collected by E. S. Ross.

Distribution. China; Thailand (Doi Suthep, Doi Pui).

Remarks. The species is similar to *U. fukiensis* Kaszab, 1954 and *U. curticornis* Kaszab, 1980 for their antennomeres 5 to 9 have several long grooves at each inner side, but they can be distinguished by the different shape of the aedeagus. This is the first record of *U. longolineata* Liu & Ren, 2007 from Thailand.

3. ***Uloma zhengi* Liu & Ren, 2007** (Fig. 3), new record to Thailand

Uloma zhengi Liu & Ren, 2007: 534.

Type locality. China.

Type specimen examined. 1♂ (MHBU), the holotype, China, Guangxi, Leye, Nanchao, 26-VII-2004, collected by YangYU and Chao GAO.

Other specimens examined. 1♂2♀ (CAS), Thailand, Tak, vicinity of Umphang, mid-January to mid-April 1991, native collectors.

Distribution. China; Thailand (Tak).

Remarks. This species is similar to *U. fomosana* Kaszab, 1941, but can be distinguished from the latter by the shape of aedeagus, prosternal process and protibia. This is the first record of *U. zhengi* Liu & Ren, 2007 from Thailand.

4. ***Uloma polita* (Wiedemann, 1821)** (Fig. 4)

Phaleria polita Wiedemann, 1821: 149.

Uloma polita: Gebien 1912: 234.

Uloma scita Fairmaire, 1894: 37. Synonymized by Gebien, 1912: 234.

Type locality. Bangladesh.

Specimens examined. 1♂ (CAS), China, Formosa, 01-V-1932, collected by L. Gressitt; 1♂ (MHBU), China, Yuedong, Jianfengling, 17-V-2007, collected by Yibin BA and Juntong LANG.

Distribution. China; Thailand; Bhutan; Burma; India; Indonesia; Japan; Laos; Madagascar; Mauritius; Nepal; Rodriguez Islands; Sri Lanka; Vietnam.

Remarks. The species can be easily recognized from the other species of this genus by the protarsomere 3 with a lobed protuberance.

5. ***Uloma javana* Gebien, 1912** (Fig. 5), new record to Thailand

Uloma javana Gebien, 1912: 234.

Type locality. Indonesia.

Type specimens examined. 2♂ (NHMB), the types, Java, no time or collector.

Other specimens examined. 2♂ (CAS), Thailand, Tak, vicinity of Umphang, mid-January to mid-April 1991, native collectors.

Distribution. Thailand (Tak); Indonesia.

Remarks. This species is similar to *U. ruficornis* Allard, 1896, but can be distinguished from the latter by the shape of metatibia, protibia, antennae and prosternal process. This is the first record of *U. javana* Gebien, 1912 from Thailand.

6. ***Uloma rufilabris* Fairmaire, 1882** (Fig. 6)

Uloma rufilabris Fairmaire, 1882: 226.

Type locality. Indonesia.

Original description. "Long. 5.5 à 7 millim. – Oblongo–ovata, convexiuscula, nigra, nitida, ore, antennis pedibusque plus minusve rufopiceis; capite subtiliter punctato, antice leviter impresso; antennis latis; prothorace transverso, antice paulo angustato, lateribus leviter arcuatis, dorso tenuiter sat dense punctulato, impressionibus nullis; scutello ogivali, laevi; elytris punctato–striatis, striis apice profundioribus, intervallis planiusculis, laevibus; tibiis anticis acute denticulatis".

Redescription. Male. Body elongate elliptical, very shiny; dark brown, antennae, mouthparts and legs slightly paler; comparatively thick. Head subhexagonal, with large punctures in anterior half, and with sparse small punctures in posterior half; labrum transversely trapezoidal, sparsely punctate, scattered with short and yellow hairs; clypeus sparsely and finely punctate, anterior margin truncate, without ridges; frontoclypeal suture faintly impressed; genae feebly and slightly extended, temples reduced; eyes transverse, with at least 2–3 facets at narrowest point in lateral view, distance between eyes about 2.67 times their diameter; frons weakly convex, with small and very sparse punctures; mentum subhexagonal, truncate basally, weakly emarginate at anterior margin, flat in middle, with a pair of oblique grooves at both sides, without pubescence; ligula emarginate anteriorly, depressed in middle with sparse long hairs; maxillary palp with subknife-shaped terminal palpomere; antennae short, reaching half of pronotum; antennomere 1 thick, 2 and 3 short, near quadrate, 4 short, 5 to 10 gradually widening, forming a more or less distinct club, 7 to 10 extremely transverse, nearly rectangular, 11 semispherical; ratio of the length (the width) of antennomeres 1–11 as follows: 9.0 (6.0): 5.0 (6.0): 5.0 (6.0): 4.5 (7.5): 4.5 (8.5): 4.5 (9.0): 6.0 (11.0): 6.0 (12.0): 6.5 (15.5): 6.5 (14.0): 8.5 (12.0).

Pronotum transverse, about 1.44 times as wide as long, widest at basal 2/3, with small punctures widely spaced in middle but becoming denser toward sides; pronotum without anterior impression; anterior margin slightly emarginate with narrow border only at both apices, without border in middle 1/5, and with dense short hair fringes; lateral margins arcuate, strongly narrowing forward and less so from widest point to base, with broad border; basal margin slightly convex, with a pair of oblique shallow impressions; anterior angles obtuse, posterior angles obtuse. Elytra slightly arcuate laterally; elytra distinctly punctato-striate, punctures of elytral rows large and broader than stripes; intervals slightly convex, very finely and sparsely punctate with several transverse wrinkles, lateral margins visible only at humeri in dorsal view. Scutellum triangular, with very sparse and small punctures. Epipleura densely and coarsely punctate, and the punctures gradually becoming smaller to apex. Prosternum with dense coarse and large punctures, prosternal process rounded in lateral view, smoothly descended at apex, without subapical tubercle. Mesosternum coarse, largely punctate, with deep triangular impression. Metasternum mediumsized, smooth, sparsely and largely punctate. Abdominal ventrites finely and sparsely punctate, punctuation denser and larger towards lateral portions; last ventrite without impression and apical groove.

Protibia with two equal apical spurs; slightly concave, narrow at base, then feebly and gradually explanate on both inner and outer edges; inner edge nearly straight at base, slightly protrudent to inner apex, fringed with yellow short hairs becoming denser and longer toward apex; outer edge with 6–7 sharp denticulations at apical 2/3 scattered with short hairs; dorsal surface with low and blunt longitudinal keel, dorsal surface with large sparse and not confluent punctures; ventral surface with a row of several very small and low protuberances, and short sparse hairs. Mesotibia gradually dilated toward apex, outer edge with small denticles and sparse short hairs. Metatibia gradually dilated toward apex, outer edge with small denticles and sparse, short hairs at apical 1/3. Length ratio of metatarsomeres 1 to 4 as follows: 20.0: 5.5: 5.5: 15.5.

Aedeagus with basale nearly parallel-sided; apicale slender, broad at base, constricted at middle, then nearly parallel at apical half, slightly convex at apex in dorsal view, with longitudinal depression broader at basal half in ventral view, slightly curved in lateral view.

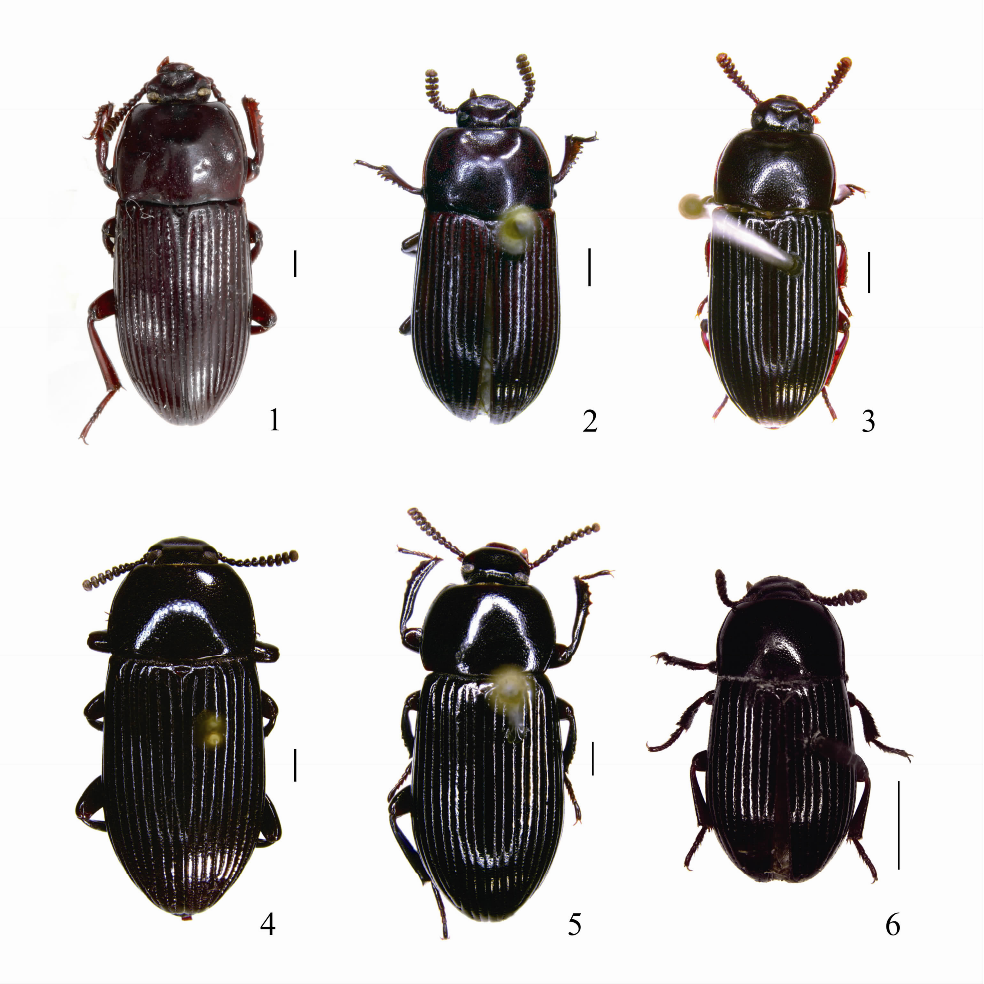
Female. Mentum subhexagonal, without pubescence. Ligula with sparse long hairs. Clypeus without ridges. Antennae with shape similar to that of male. Pronotum without anterior impression. Protibiae with shape similar to that of male, but inner edge not produced to inner apex. Last ventrite without impression and apical groove.

Measurements. Body length: 5.5–7.0 mm; width: 2.5–3.0 mm.

Specimens examined. 2♂ (MHBU), Thailand, V-2006, collector unknown; 2♂1♀ (NSMT), W Sumatra, IX-1995, native collector.

Distribution. Thailand; Himalayas; India; Indonesia; Nepal; Vietnam.

Remarks. The original description of this species is quite cursory, so a redescription of the male and the first description of the female are provided.



Figures 1–6. 1. *U. rubripes rubripes* (Hope, 1831); 2. *U. longolineata* Liu & Ren, 2007; 3. *U. zhengi* Liu & Ren, 2007; 4. *U. polita* (Wiedemann, 1821); 5. *U. javana* Gebien, 1912; 6. *U. rufilabris* Fairmaire, 1882. 1–6. Habitus, ♂, dorsal views. Scale bars = 1 mm.

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